

consisting of P_2O_5 and a metal oxide which has a metallic component selected from Group IA, IB, IIA, IIB, IIIA, IIIB, IVA, IVB, VA, and the rare earth series of the Periodic Table, wherein said compound in vapor form capable of being converted to at least one member of the group consisting of P_2O_5 and a metal oxide which has a metallic component selected from Group IA, IB, IIA, IIB, IIIA, IIIB, IVA, IVB, V[B]A, and the rare earth series of the Periodic Table is a halide-free compound;

(b) passing said gas stream into the flame of a combustion burner to form amorphous particles of fused SiO_2 doped with an oxide dopant;

(c) depositing said amorphous particles onto a support; and

(d) either essentially simultaneously with said deposition or subsequently thereto consolidating said deposit of amorphous particles into a non-porous body; the improvement comprising utilizing as said silicon-containing compound in vapor form a halide-free polymethylcyclsiloxane, whereby no halide-containing vapors from said silicon-containing compound are emitted during the making of said non-porous body of high purity fused silica glass.

22. (Amended) [A method according to claim 17] In a method for making optical waveguide fibers of high purity fused silica glass doped with an oxide dopant comprising the steps of:

(a) producing a gas stream containing a silicon-containing compound in vapor form capable of being converted through thermal decomposition with oxidation or flame hydrolysis to SiO_2 and a compound in vapor form capable of being converted through oxidation or flame hydrolysis to at least one member of the group consisting of P_2O_5 and a metal oxide which has a metallic component selected from Group IA, IB, IIA, IIB, IIIA, IIIB, IVA, IVB, VA, and the rare earth series of the Periodic Table;

(b) passing said gas stream into the flame of a combustion burner to form amorphous particles of fused SiO_2 doped with an oxide dopant, wherein said compound in vapor form capable of being converted to at least one member of the group consisting of P_2O_5 and a metal oxide which has a metallic component selected from Group IA, IB, IIA, IIB, IIIA, IIIB, IVA, IVB, VA, and the rare earth series of the Periodic Table is a halide-free compound;

(c) depositing said amorphous particles onto a mandrel;